Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1-33. (Cancelled)

34. (Currently Amended) The solid state imaging apparatus of claim [[3]] 41, wherein the plurality of photoelectric elements are photo diodes.

35. (Currently Amended) The solid state imaging apparatus of claim [[31]] 39, wherein, ~~further comprising:~~

[[a]] the first and second pixel amplifier transistors are ~~transistor which is~~ coupled to the first and second floating diffusion sections, respectively ~~section~~; and

each of the first and second pixel amplifier transistors ~~transistor~~ comprises [[of]] a source follower transistor which detects and outputs a voltage potential converted from one of said first floating diffusion section and said second floating diffusion section.

36. (Currently Amended) The solid state imaging apparatus of claim [[31]] 39, wherein the plurality of read lines are connected to a vertical scanning circuit.

37. (Currently Amended) The solid state imaging apparatus of claim [[12]] 39, further comprising:

~~a plurality of pixel amplifier transistors detecting and outputting a potential of the floating diffusion section, and~~

a plurality of a pair of signal lines outputting ~~a signal~~ signals from the first pixel amplifier transistors and the second pixel amplifier transistors, respectively, to the outside[[,]].

~~wherein one of the pair of signal lines is connected to a pixel amplifier transistor which is adjacent to another pixel amplifier transistor in the row direction to which the other is connected.~~

38. (Currently Amended) The solid state imaging apparatus of claim [[31]] 49, further comprising:

~~a plurality of pixel amplifier transistors detecting and outputting a potential of the floating diffusion section, and~~

a plurality of a pair of signal lines outputting ~~a signal~~ signals from the pixel amplifier transistors adjacent to each other, respectively to the outside[[,]].

~~wherein one of the pair of signal lines is connected to a pixel amplifier transistor which is adjacent to another pixel amplifier transistor in the row direction to which the other is connected.~~

39. (New) A solid state imaging apparatus comprising:

a plurality of photoelectric conversion cells each including a plurality of photoelectric sections arranged in a matrix including at least first and second rows and first and second columns;

a plurality of first floating diffusion sections each being shared by, and being connected to, the photoelectric sections which are included in the first row of each photoelectric conversion cell via a plurality of transfer transistors, respectively;

a plurality of second floating diffusion sections each being shared by, and being connected to the photoelectric sections which are included in the second row of each photoelectric conversion cell via a plurality of transfer transistors, respectively;

a plurality of read-out lines each being selectively connected to at least two of the transfer transistors;

a plurality of first pixel amplifier transistors each detecting and outputting the potential of each first floating diffusion section; and

a plurality of second pixel amplifier transistors each detecting and outputting the potential of each second floating diffusion section.

40. (New) The solid state imaging apparatus of claim 39, wherein each read-out line is connected to the transfer transistors connected to the photoelectric conversion sections which are included in one of the first and second columns.

41. (New) The solid state imaging apparatus of claim 39, wherein each read-out line is connected to the transfer transistors connected to the photoelectric conversion sections which are included in the first and second columns, respectively.

42. (New) The solid state imaging apparatus of claim 39, wherein each floating diffusion section and each pixel amplifier transistor are shared by the photoelectric sections in the first row of one of the photoelectric conversion cells and the photoelectric sections in the second row of another of the photoelectric conversion cells.

43. (New) The solid state imaging apparatus of claim 39, further comprising:

a signal line for outputting a signal from each pixel amplifier transistor to the outside; and

a select transistor which is provided between the pixel amplifier transistor and the signal line to selectively conduct between the pixel amplifier transistor and the signal line.

44. (New) The solid state imaging apparatus of claim 39, wherein each floating diffusion section and each pixel amplifier transistor are shared by photoelectric conversion sections which are adjacent to each other in the row direction or in the column direction.

45. (New) The solid state imaging apparatus of claim 39, wherein in each floating diffusion section, a reset section for resetting charge stored in the floating diffusion section.

46. (New) The solid state imaging apparatus of claim 39, wherein the photoelectric conversion sections are arranged so as to be spaced apart from one another by a certain distance in the row direction or in the column direction.

47. (New) The solid state imaging apparatus of claim 39, further comprising a signal processing circuit for processing an output signal from each pixel amplifier transistor.

48. (New) The solid state imaging apparatus of claim 39, wherein the photoelectric conversion cells are separated from one another by a power supply line which also functions as a light-shielding film.

49. (New) A solid state imaging apparatus comprising:

a plurality of photoelectric conversion cells arranged in a matrix, each photoelectric conversion cell including a plurality of photoelectric sections arranged in a matrix including at least two rows and at least one column;

a plurality of floating diffusion sections each being provided between said photoelectric conversion cells, each floating diffusion section being shared by, and being connected to, the photoelectric conversion sections which are respectively included in the at least two rows and the at least one column in each photoelectric conversion cell via transfer transistor, respectively;

a plurality of read-out lines each being connected to one of the transfer transistors and independently reading out charge from the one of the photoelectric conversion sections of each photoelectric conversion cell to each floating diffusion section shared by said photoelectric conversion sections; and

a plurality of pixel amplifier transistors each detecting and outputting the potential of each floating diffusion section.

50. (New) The solid state imaging apparatus of claim 49, further comprising reset transistors for resetting charge stored in said floating diffusion sections,

wherein the drain of the reset transistor is connected to the drain of the pixel amplifier transistor so that a drain is shared by the reset transistor and the pixel amplifier transistor.

51. (New) The solid state imaging apparatus of claim 49, wherein each floating diffusion section is arranged between the photoelectric conversion sections which are adjacent to each other in the row direction in each said photoelectric conversion cell.

52. (New) The solid state imaging apparatus of claim 49, wherein each said transfer transistor is made of an MIS transistor, and

wherein a gate of the MIS transistor is arranged in the row direction.

53. (New) The solid state imaging apparatus of claim 49, wherein each pixel amplifier transistor is arranged between rows which include some of the photoelectric conversion sections and are adjacent to each other in each said photoelectric conversion cell.

54. (New) The solid state imaging apparatus of claim 49, wherein each pixel amplifier transistor and each floating diffusion section are arranged between the read out lines.

55. (New) The solid state imaging apparatus of claim 49, wherein each pixel amplifier transistor is arranged between the photoelectric cells which are adjacent to each other in the column direction.

56. (New) The solid state imaging apparatus of claim 55, wherein each transfer transistor is made of an MIS transistor, and

wherein each pixel amplifier transistor is arranged between respective gates of the MIS transistor and another MIS transistor.

57. (New) The solid state imaging apparatus of claim 50, wherein each reset transistor is arranged between rows which include some of the photoelectric conversion sections and are adjacent to each other in each said photoelectric conversion cell.

58. (New) The solid state imaging apparatus of claim 50, wherein each pixel amplifier transistor and the floating diffusion section are arranged between the read out lines.

59. (New) The solid state imaging apparatus of claim 50, wherein each reset transistor is connected to a line arranged between the photoelectric cells which are adjacent to each other in the row direction.

60. (New) The solid state imaging apparatus of claim 50, wherein each reset transistor is arranged between the photoelectric conversion cells which are adjacent to each other in the column direction.

61. (New) The solid state imaging apparatus of claim 60, wherein each transfer transistor is made of an MIS transistor, and

wherein each reset transistor is arranged between respective gates of the MIS transistor and another MIS transistor.

62. (New) The solid state imaging apparatus of claim 49, wherein each floating diffusion section is arranged between the photoelectric conversion cells which are adjacent to each other in the column direction.

63. (New) The solid state imaging apparatus of claim 49, wherein the photoelectric conversion sections are arranged so as to be spaced apart from one another by a certain distance in at least one of the row direction and the column direction.

64. (New) The solid state imaging apparatus of claim 50, wherein the line connecting respective drains of the reset transistor and the pixel amplifier transistor also functions as a light-shielding film.

65. (New) The solid state imaging apparatus of claim 49, further comprising a signal processing circuit for processing an output signal output from each pixel amplifier transistor.

66. (New) A camera comprising a solid state imaging apparatus, the apparatus including:

a plurality of photoelectric conversion cells each including a plurality of photoelectric sections arranged in a matrix including at least first and second rows and first and second columns;

a plurality of first floating diffusion sections each being shared by, and being connected to, the photoelectric sections which are included in the first row of each photoelectric conversion cell via a plurality of transfer transistors, respectively;

a plurality of second floating diffusion sections each being shared by, and being connected to the photoelectric sections which are included in the second row of each photoelectric conversion cell via a plurality of transfer transistors, respectively;

a plurality of read-out lines each being selectively connected to at least two of the transfer transistors;

a plurality of first pixel amplifier transistors each detecting and outputting the potential of each first floating diffusion section; and

a plurality of second pixel amplifier transistors each detecting and outputting the potential of each second floating diffusion section.

67. (New) A camera comprising a solid state imaging apparatus, the apparatus including:

a plurality of photoelectric conversion cells arranged in a matrix, each photoelectric conversion cell including a plurality of photoelectric sections arranged in a matrix including at least two rows and at least one column;

a plurality of floating diffusion sections each being provided between said photoelectric conversion cells, each floating diffusion section being shared by, and being connected to, the photoelectric conversion sections which are respectively included in the at least two rows and the at least one column in each photoelectric conversion cell via transfer transistor, respectively;

a plurality of read-out lines each being connected to one of the transfer transistors and independently reading out charge from the one of the photoelectric conversion sections of each photoelectric conversion cell to each floating diffusion section shared by said photoelectric conversion sections; and

a plurality of pixel amplifier transistors each detecting and outputting the potential of each floating diffusion section.

68. (New) The solid state imaging apparatus of claim 39, wherein respective charges of the photoelectric conversion sections each being connected to one of the read-out lines and being read out by the transfer transistors are read out by said first floating diffusion sections or said second floating diffusion sections.

69. (New) The camera of claim 66, wherein respective charges of the photoelectric conversion sections each being connected to one of the read-out lines and being read out by the transfer transistors are read out by said first floating diffusion sections or said second floating diffusion sections.